QUANTA

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Volume 22 ISSUE 3/4
Apr/May 2005

Information on The Group

Membership of QUANTA, the independent QL user group is by annual subscription. The Membership secretary can supply full details. Copies of the group's constitution & annual accounts are available from the Secretary. There is an extensive software library. There are active national and international subgroups. Details are given in the Welcome Booklet Disk.

Quanta Committee - 2005/2006

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Magazine Submissions	Submissions to be on microdrive or floppy disk (Quill _doc preferred) or by email to the editor. Non-QDOS formatted material preferred as ASCII text file or RTF file.	
Library Submissions	**John Gregory (see above)**	
Helpline Requests	**Geoff Wicks**	As Above
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EDITORIAL — Roy Brereton

Well, this is my last editorial, and it seems a good time for me to put into print the names of those people who have actively supported the newsletter with their valued contributions. Ian Pizer, Stephen Poole, John Gregory, Geoff Wicks, Malcolm Cadman, Al Boehm, George Gwilt, Dilwyn Jones, Roy Kempton, Shaun Bebbington, Mort Binstock, Bruno Coativy, Per Witte, Tarquin Mills, P H Warne, G P Carne and Paul Merdinian. So, step forward and take your kudos!! Thank you for your active support, it has been great to receive / read your contributions, and, incidentally, the articles have been quite a variable mix which has tended to satisfy most members.

On a personal note, it has been somewhat of a learning curve, but enjoyable all the same. Although through circumstances I have not been able to attend as many workshops as I would have wished, I do hope to get to some in the future to 'keep my hand in' as they say. The occasional letters / telephone calls of thanks for my efforts with the newsletter have also been much appreciated and I thank those who have written / called.

"QL is 21" is starting to take shape now, and it seems the right time to issue a reminder to members that Geoff Wicks is organising events at Portsmouth and it is important that if any member(s) wish to put forward suggestions for anything for that weekend, please contact Geoff asap on 0115 930 3713.

As a final thought I would also like to say thank you to my fellow committee colleagues for their help, forbearance (especially with my initial mistakes!), and general encouragement over the past twelve months. In particular, John Gilpin has been very supportive for which I am grateful.

There is one person who I have not mentioned; his name is Bruce Nicholls and he has been an unbelievable help to me in my duty as Editor. I can honestly say that I could not have managed without him. Thanks Bruce.

If I had still been a committee member by this July, I would have served the Quanta membership as either a committee member or officer for exactly fifteen years. Add in the two years in the late eighties when I was a sub librarian, and you have a total of seventeen years, so I can honestly say that I have “done my bit”!!

Anyway, that’s my time up and it’s time to go! Thank you all once again and I hope that Quanta and the QL survive for a few more years yet – take care and regards to everyone.

Roy

Note! It is important that people planning to attend "QL is 21" at Portsmouth book their rooms at the Ibis Hotel ASAP. Other events take place in Portsmouth around this time and it would be wise to confirm now.

SUBGROUP MEETINGS

THE BIRMINGHAM BRANCH QL & 68000 User Group

This long-running group has moved back to its previous venue, the Queens Head pub in the City Centre. Meetings remain open to Quanta members and non-members alike. The Queens Head is in Steelhouse Lane, Central Birmingham, four minutes walk from Snow Hill main-line railway station and has ample street parking nearby.

Meetings are usually on the first and third Monday of each month (but not on Bank holidays unless the previous one was cancelled for that reason). After your first meeting you're expected to pay £1 each time towards the organisation and monthly newsletter costs - except once a year when the group pays all those who attend a pound instead (We provide food twice a year for those who attend the AGM and the group's birthday party) and at meetings we discuss all sorts of things, QL-related and otherwise, usually from about 8:20pm onwards till 10:30 or later. The group owns QL hardware, a disk library and subscribes to relevant magazines. People can join the mailing list for £3.50 per year, even if they can't attend regularly.

The contact number remains Mike Bedford White's, on 0121 708 2560, anytime after 11am.

EAST ANGLIAN QL USER GROUP

Meetings happen on the 1st and 3rd Sundays of the month at Bramerton Village Hall. Bramerton is just south of Norwich. They start at 1pm and end at 5pm. There is free parking on site, and tea/coffee is also provided free. If you can, please bring your QL system, all welcome.

Tarquin Mills <speccyverse@ntlworld.com> or Tel:01603-470399

QUANTA DORSET SUBGROUP

Meetings are held at the Merley Community Centre in Harrier Drive, Merley just south of Wimborne Minster. All are welcome.
Normally on the second Sunday of each month .

John Meadows Tel: 01202 576189, or John Mason, 01425 275894.

LONDON QL AND QUANTA GROUP

We meet in the basement of the Borough Welsh Chapel, 90 Southwark Bridge Road, London SE1. This is almost opposite the junction with Marshalsea Road, at the other end of which, 5 minutes walk away, is the Borough Underground station. Parking easily available in Southwark Bridge Road for road users, cyclists welcome. The hire of the hall is £30 a year, and tea/coffee is provided at a small charge. Please bring your QL equipment if possible, all types welcome e.g. PC portables running emulators.
2.00 p.m. to 6.00 p.m. on the second Sunday of every month.

Malcolm Cadman:Tel. 020 8691 5780; email: ql@mcad.demon.co.uk

NEMQLUG - THE NORTH EAST MANCHESTER QL USER GROUP

181, Urmston Lane, Stretford, Manchester. M32 9EH (Near Junction 7 of M60 Motorway - Was Junction 7 M63 Motorway). Our informal meetings start at 7-OOpm and finish at 11-OOpm. All welcome.
Meets on the last Thursday of each month (except December).

John/Sarah Gilpin 0161-865 2872 (gilpins@ic24.net) or John/Alison Southern 01625-850067. (tarragon@bigfoot.com)

SCOTTISH QL USERS GROUP

SQLUG meets at George Gwilt's every second Sunday in the month. Please contact George Gwilt before coming to get the location.

Geogwilt@aol.com

SOLENT SUBGROUP

Meets at Botley Market Hall, all welcome. Park at the back and use side entrance.
1st Saturday of the month from 2.00 pm to 6.00 pm.

Graham Evans, tel: 023 8040 3350.

SURREY QUANTA SUBGROUP (SQSG)

Venue is St Giles Church Hall, Ashtead. (This is the other side, towards the downs, of the main Epsom - Leatherhead road, up Park Lane which is at the Epsom end of the town).
From 8.00 to 10.30 pm on the last Wednesday of each month, except December.

Ken Bain 01932 347 432 (to midnight), kenb@bcs.org.uk

SUSSEX QL USER GROUP

Currently without a meeting place, anyone interested should contact Keith Mitchell or Roy Wood.

Roy Wood, 01273 386030 or Keith Mitchell, 01903 742263.

Independent QL Users Group

World-wide Membership is by subscription only,
offering the following benefits:
Bimonthly Newsletter – up to 40 pages
Massive Software Library – All Free !
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Regional Sub-Groups. One near you?
Advice on Software and Hardware problems
Subscription just £14 for UK members
Overseas subscription £17

Barclaycard: Visa: Access: MasterCard: Accepted

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Further details from the Membership Secretary

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Tel. +44 (0) 161 865 2872
or
Visit the Quanta Web Site
http://www.quanta.org.uk
E-mail: membership@quanta.org.uk

Next QUANTA Sponsored Event

Byfleet Hall
25th September 2005

JOCHEN MERZ SOFTWARE

Kaiser-Wilh.-Str. 302 D-47169 Duisburg
Tel. 0203 502011 Fax 0203 502012
http://smsq.j-m-s.com smsq@j-m-s.com

QDT - The QL Desktop

QDT brings the QL a modern, easy- and intuitive-to-use graphical user interface. Arrange your programs, games, applications in folders, start your favourite applications with a single click. Fully configurable!

QDT comes with an automatic installer – like a guided tour. Installing it is as easy as never before!

System requirements:
- SMSQ/E Version 3.06 or later
- Graphics Driver 2 Colour support
- HARD DRIVE with at least 3MB free space.
- 4MB RAM

What do you get when you order QDT?
- A floppy disk for Aurora or quick-start users.
- A CD ROM containing a QXLwin file, backgrounds, sprite editor, and many other extras.
- A printed quick-start guide - 12 months free updates!

QDT costs EUR 43,– plus postage (EUR 3,– Europe, EUR 6,– rest of the world).

NEW! NEW! NEW!
Easy Pointer Version 4

NEW!

You have probably read a lot about EasyPTR V4 in this issue - now is the time to order it!
Upgrade from old versions of EasyPTR EUR 39,90 plus p&p
Brandnew version, if you do not own any old version of EasyPTR EUR 59,90 plus p&p
(Postage EUR 5,- Europe, EUR 8,- rest of the world)

BALLED! - new game for the Pointer Environment

Balled is the new Game from Wolfgang Lenerz for QDOS and SMSQ/E. It runs in high-colour mode (looks great) and can also be played in standard QL Mode 4.
Also, Balled uses the digital sound system if you run it on a recent version of SMSQ/E and QPC, Q40 and Q60! The aim of the game is to build lines by moving coloured balls around, following some rules, of course. After every move, more balls appear, so you have to be careful not to fill up the board – then the game is over! Different levels of difficulty and wildcard balls are also featured. Find out how to get bonus and higher scores to fill up the high-score table!
Balled costs only EUR 11,90 plus postage (EUR 2,- Europe, EUR 4,- rest of the world).

QPCPrint - printer driver for QPC NEW!! NEW!!

NEW!

QPCPrint allows you to print to virtually any printer connected to your PC running QPC, even to fax and pdf printer drivers. It accepts EPSON ESC/P2 codes to any PAR printer and converts it to output which can be handled by Windows, which looks very similar to original EPSON output. You can even configure the individual fonts used by the emulation. This is THE application many QPC users waited for a long time! Shipped on CD.
QPCPrint costs only EUR 39,90 plus postage (EUR 3,- Europe, EUR 6,- rest of the world)

If you wish to place your order via internet, please do not send your credit card details in an email!
Please use the secure contact form on the SMSQ homepage: SMSQ.J-M-S.COM
We accept VISA, MasterCard and Diners Club!

Programme Agenda

QUANTA AND OTHER QL SHOWS PROGRAMME *(Italics indicate a provisional date)*

	WEEK 1	WEEK 2	WEEK 3	WEEK 4
MARCH 2005				EINDHOVEN LOCAL - 26th
APRIL 2005			QUANTA AGM - HOVE - 17th	Magazine copy deadline - 30th
MAY 2005		*Possible Quanta London show - 8th*		
JUNE 2005	*Possible Spanish show - 4th*	*Possible Quanta London show - 12th*	EINDHOVEN INTERNATIONAL - 18th "QL2004 After Glow Show"	Magazine copy deadline - 30th
JULY 2005		*Possible Quanta London show - 10th*		
AUGUST 2005				Magazine copy deadline - 31st
SEPTEMBER 2005		*Possible Quanta London show - 11th*		Possible Quanta Byfleet - 25th
OCTOBER 2005		*Possible USA QL SHOW - 8th/9th*	EINDHOVEN LOCAL - 15th	QUANTA - QLis21 - PORTSMOUTH 29th/30th Magazine copy deadline - 31st
NOVEMBER 2005				
DECEMBER 2005				Magazine copy deadline - 31st
JANUARY 2006				
FEBRUARY 2006				Magazine copy deadline - 28th

Q-Celt Computing

The Falconry, Glenmacnass, Glendalough, Co.Wicklow, Ireland.
Tel: (+353)-404-45319 Fax: (+353)-404-45558 Email: darren.branagh@boimail.com

QL Compatible CD-ROM's

The Dilwyn Jones Collection (all of Dilwyns Programs on one CD!!)…….**Now £20**
Z88 Heaven Collection (thousands of Programs for the Cambridge Z88 Laptop)…….**Now £8**
Famous Faces (Linedesign caricatures of famous people)…….**Now £10**
Linedesign Clipart Collection (600Mb. of Linedesign files!!)……**Now £10**
ZeXcel Spectrum Emulator CD (the QL Speccy Emulator and ton's of Games)…**Now £10**
The QL Documentation CD (hundreds of useful text files on QL Subjects)……**Now £5**.
The Emulator CD (QL emulators for various systems, and a thousand free programs)……..**Now £5**
The Religion CD (for the scholar; lots of various religious texts)……..**Now £10**
The QL-CDR (By Gerard Plavec, lots of freeware programs)…….**Now £5**

QL 2002 – The DVD Movie!!

A professionally edited and made DVD documentary (over an hour long!!) on the current QL scene, containing the recent QUANTA meeting and AGM in Manchester, and interviews with Bill Richardson and Tony Firshman. Complete with Outtakes, and a comprehensive trader directory and QL info slide show. The entire QL EMULATORS CD-Rom is also included FREE on the DVD disk, so you get hundreds of programs for free!! Will work on PC or Mac DVD drives and all standalone DVD Players.

PRICE REDUCED!! - Now Only £20 Sterling plus P&P.

NEW PROGRAM – LAUNCHPAD!!!

A Brand new program from Dilwyn Jones, one of the best QL programmers around. It's a Program Launching front end, and allows you to assign Icons for your programs, to have your own desktop login, preserve settings, have multiple users, and other great ideas. It has been improved,a lot of bugs found and fixed since the first release, and is very stable. A very useful program.

Only £20 !!

We also have a lot of Older QL Hardware (some quite rare) for sale – email for details. We have a fully working Thor Computer for sale, Various QL Monitors, And some older software. If you are looking for something in particular, email us – we may have it!!

We are also planning the next Irish QL Show Weekend for the Summer of 2005 – watch this space for more details!!

Legacy or Obsolescence, Skin and Guts, Free Or for Sale

Al Boehm

Geoff Wicks in Quanta Oct/Nov 2004, brought up two important factors that will affect the future of the QL and indeed all computers. Here's my free spin.

In my 40 years of programming, computer hardware has improved by leaps and bounds. I can visit out of the way places and send pictures and music (no smell yet) back home. Yes, I have been a few places where there is no internet nor even phones, but it is just a matter of time. For software not to keep up with these advances makes no sense.

On the other hand, if I have a useful program, and my hardware dies, I would hope it would run on my next purchase of the latest machine. In this regard, QL developers deserve some praise for working hard to allow older software to run on the latest hardware. Granted their efforts were not completely successful. Some games fail that POKE in areas that were assumed would not change even though the documentation said they might. TK2 and PE were OK in that programs that needed them were usually well labeled. You just needed to obtain and load them first.

The biggest problem came with SMSQ. Some validly written programs, e.g. Turbo, just would not work. George Gwilt and others deserve thanks for developing new versions that would. But I still use two versions of SET, one for SMSQ and one for the others. Nevertheless, I believe great effort went into trying to make SMSQ run older software properly.

Now we come to the GD2 many color drivers. The good news is now the QL can display wonderfully colored images. The bad news is that they take up memory and slow things down. This bad news is no problem with an emulator running on a 2GHz 512 M byte PC, but on

an Aurora/ Super Gold card, it is a serious crimp. I have not installed the latest GD2 programs on my slower machines for this very reason. Further, I imagine that those with only slower, smaller machines will not purchase GD2 programs.

I recommend three solutions. First, use the PE approach, that is, have a GD2 package that can be LRESPRed onto QDOS and allow the use of many colors only when you need them, for example in a drawing program.
Secondly, in SMSQ/E when in MODE 4 or MODE 8, use the old drivers which are much faster and use less memory.

The third solution has to do with skins. A skin is a graphical interface for a program. Many programs are set up so that you can chose from many skins the one that is best for you. Some skins are fancy with ornate borders and 3D sliders moved with the mouse. Others are utilitarian with simple type in commands. Often they can be configured to provide even more variety - red or blue, square or oblong, big or small, basic options or numerous options. To some with an artistic bent, how the interface looks is more important than the program! Even to utilitarian me, how the skin is set up is important since if affects how self explanatory, efficient, and foolproof the program can be used.

Geoff Wicks' new look versions for Just Words programs are basically new skins for his old programs. While the programs look better, they mostly do the same things as before. What I recommend to Geoff and all that write GD2 programs is that they adjust the programs so that they can be used with multiple skins. And document the interface to the skin so that others can write additional skins for specific goals. Thus, some skins could use the GD2 colors while others would be simply MODE 4 or MODE 8.

QL Today

The magazine for all QDOS SMSQ users published 5 times a year.

Volume 10 starts here!

Issue 1 of Volume 10 will be available mid June. Celebrating 10 years of providing top notch service and information to the QL community.

If you not returned your renewal forms please do so as soon as possible so you do not miss out.
Issue 9 saw the start of a new series to help people to get to grips with the new facilities, colours, emulators and hardware as well as many program reviews and super features.

You can subscribe by contacting :

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Kaiser-Wilhelm Str. 302, 47169 Duisburg, Germany
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JUST WORDS! Quantum Leap Hardware & Software

PRESENTS...

for the Q40 & Q60 (And Aurora/SGC)

for QPCII & QXL

Scrabble® Meets Tetris® Meets the clock!

In glorious colour and digital sound! (Aurora too!)

For the first time in the history of the QL, a truly high colour, digital sound *really* addictive game, in superb 1024 x 512 (640 x 480 on QPC/QXL and 512 x 480 on the Aurora) high colour. SMSQ/e is NOT needed for the Aurora (and soon for the Q40/60) but it is recommended The innovations are too many to mention but let's just say that the surprises start with its user-friendly installer which is unlike any other!

The object of the game is to clear letter tiles from the grid by using them to form words. Points are based on the length of the word and the letters used. Simple, yet addictive!

PRICES

QWord for QPC2/QXL (CDROM)	£20
QWord for Q40/Q60 (HD FDD)	£20
QWord for Aurora/SGC (HD FDD)	£20
Add Pword (500,000 word UK dictionary)	£10

If you want more than one version of QWord (eg. to play on Aurora as well) - add £5 for each additional version.

SPECIAL OFFER! FOR AURORA/SGC USERS

BUY Q-WORD WITH Colour Drivers version of SMSQ/e for the SGC

!!ONLY £50!!

LANGUAGES

Each version is supplied with one dictionary (normally the OSPD UK English Scrabble Dictionary).
However, QWord can also be configured to use the following alternative language grids:

Dutch, English (USA), English (UK), French & German

Specialist QTYP dictionaries for each language have been produced, which removes the need for accented characters in the foreign languages.
You can choose ANY one dictionary to be supplied with QWord.
Alternatively, order additional dictionaries for £2 per dictionary.

RWAP Services
26 Oak Road, Shelfield, Walsall, West Midlands WS4 1RQ, United Kingdom Website: http://www.rwapsoftware.co.uk

We accept:

PayPal VERIFIED NOCHEX (PayPal/Nochex Payments to RWAPSoftware@aol.com. Cheques in £ sterling made payable to R. Mellor)

Skins generally require a separate set of procedures for the guts and another set for the I/O skin. Often when we program we find it easier to interlace the I/O and the calculations. However, whenever I have taken the trouble to separate them, I have found it considerably easier to debug, revise the code, or add new capabilities. Moreover, skins allow one programmer to work on the guts and another on the skins - a nice division of labor. And I might point out, the skins usually take more effort!

Free or for Sale

Geoff also mentioned the dilemma of freeware versus commercially sold programs. I have just switched to Linux with the UQLX emulator with the hope of running other QL emulators (Q-emuLator, QPC2) on Linux later I am amazed at the scope and quality of free software available for Linux.

The stated purpose of copyright and patents is to stimulate the development of new things by granting a temporary monopoly. Yes, some have bent the laws to drive out competition, and I would like some changes in the laws (Copyright protection is way too long.), but on balance, I think the concepts do stimulate new development. The developer does spend extra hours in the hope that financial gain will result. Plus there is protection of who should get the credit.

One would think that a user could have some right of compensation if a purchased program did not work right (fat chance!). On the other hand, commercial programs do seem to be better maintained with bugs fixed and with added improvements.

The question is what drives freeware developers? One motivation is recognition. NASQLUG has awarded prizes for good software.

I have written a lot of software - over 100 thousand lines of code. But most of it was to solve a specific problem and once the answer was obtained or algorithm proved, the code was trashed. The programs that were suitable for others I presented as freeware with the only limitation being that if they were changed they be given a different name; others are free to mangle my code, but I do not want to be blamed for it! On the other hand, if someone can use all or part of my freeware code in a commercial program and make a million, they have my blessing.

Thus I do not consider freeware code that can only be used in freeware programs as truly free.

Now that you have some idea of my position, I now make three recommendations.

First, we should support our commercial QL developers by paying royalties and purchasing programs.

Secondly, I recommend that Quanta offer say 15 pounds for the best freeware submitted to the library each quarter. I would guess this would generate considerably more software entries.

Third, many commercial programs after five or ten earning years no longer have much marketability. The authors of such programs have graciously made some of them freeware. But which ones? I recommend Quanta set up a list of redesigned software, make it available on the Quanta website, keep filed official releases, and to query software authors of older programs as to the status of their programs.

God bless,
Al

HELPLINE Geoff Wicks

Question: What is the current approved way of getting screen dumps and can these be dropped in Microsoft Word?

Answer: Time was when saving QL screens was a simple matter of

SBYTES flp1_QL_scr,131072,32768

but more colours and high resolution screens have put an end to that. It has now become more complicated, and many QL users have no idea how to save screens.

However the enquirer is a QPC2 user and for him there is an easy way out. QPC2 is a Windows program and you can make use of all the facilities of Windows to save the screen.

When you want to save a screen, press the key combination CTRL + PRINT SCREEN. You will not seen anything happening, which is disconcerting, but the screen will be saved to the Windows clipboard.

Now go into your favourite PC graphics programme and retrieve the screen from the clipboard by using the PASTE command. You can then crop the image or enhance it in other ways before saving it in your favourite PC graphics format. Your screen can now be imported into MS Word.

If you are not a QPC2 user it is a lot more complicated, because you have to first save the screen and then convert it into a PC graphics format. A description of how to do this would be too long for the 300 words of a Helpline slot.

Thus an appeal for help from the helpline. Could any members who have experience of saving and converting QL screens by other means please tell the helpline how they do it? I could then collate the replies and write a longer article for the Quanta Magazine.

Radio Rallies in June - July 2005

5 June Spalding & DARS Annual Rally
Sir John Gleed Technology School, Halmer Gardens, Spalding, Lincs. Large indoor and outdoor areas for traders and plenty of parking on the school field. Free parking. Open 10:00. Talkin 145.550 MHz.
Trade. Catering. Disabled facilities. Car boot sale.
Details: Ambrose, M0DJA, 07989-636520 or John, 07946-302815.
Web: http://www.sdars.org.uk

5 June Red Rose QRP Festival
The Formby Hall, Alder Stree, off High Street, Atherton, Manchester. Inividual and traders' stalls. New and surplus equipment and components. Clubs. Low-cost B&B. Morse tests/certificates. Large spacious halls at ground level with a huge free car park and disabled facilities. Talkin on S22 and admission is GBP1.50. Details: Les Jackson, G4HZJ, 01942-870634. EMail: g4hzj@ntlworld.com

5 June Plymouth RC Rally
Sparkwell Village Hall, Nr Plympton, Devon. Open 10:00.
Details: Frank, G7LUL, 01752-263222 or 07702-456401.
EMail: frank@foxonezero.fsnet.co.uk

12 June Elvaston Castle National Radio Rally
Elvaston Castle Country Park, Elvaston, Derbys. On B5010 between the A6 and A52, 5 miles SW of Derby. Parking GBP6.00. Open 09:00. Radio, computers & electronics. Flea Market. Crafts. Family attractions. Catering. Downloadable rally programme will be available from the website during the week prior to the event.The site also includes a booking enquiry page for traders to request booking forms on-line. Details: Les, G4CWD, 01332-559965. EMail Secretary@elvastonrally.co.uk
Web: http://www.elvastonrally.co.uk

19 June The Annual Newbury and District Amateur Radio Society Car Boot Sale the Ackland Memorial Hall and Recreation Field, Cold Ash nr Thatcham, Newbury, Berks. Directions on the club's website. Set up at 08:00 and gates open from 09:00-15:00. Details: Kevin, G6FOP, EMail: g5xv@ntlworld.com Web: http://www.nadars.org.uk

19 June The East Suffolk Wireless Revival's Ipswich Rally
will take place at the Suffolk Showground, Bucklesham Road, Ipswich, from 10:00 on Sunday 19th June. The rally will feature an RSGB Book Stall, Bring & Buy Stand, and a car boot sale. Talk In by GB4SWR on 145.550MHz will be operating from 08:00. For further details please contact Iain G0OZS on 01206 396 419 or John G3XDY on 01473-717830. Web: http://www.btinternet.com/~thomassg/eswr.htm

19 June Worthing and District ARC's 19th Summer Rally
at Newhaven Fort, Newhaven, East Sussex, in conjunction with the Southern Counties Amateur Radio Forum. Open 10:30 to 14:30.
Entrance fee GBP2.50 which will give visiting amateurs access to all the other Fort facilities including GB2NFM and a display of historic radio equipment which will be enhanced by any rally profits. Tables GBP15.00 for traders/GBP10.00 for private sellers can be booked via Roy, G4GPX on 01903-753893. Free parking. Newhaven is midway between Brighton and Eastbourne and the Fort is well signposted from the centre of the town.
As June 19th is also the date of the London to Brighton charity bike ride so traffic may be heavier than normal on the A23. It is also Fathers' day so what better way to spend it than with your family at the Fort Museum taking in the rally and the spectacular views across the Channel. Follow this by watching the hoards of cyclists on their last leg down the Lewes Road into Brighton, an impressive sight and great day out. For more information on Club events and activities contact Roy on 01903-753893 or Web: http://www.wadarc.org.uk Information on Newhaven Fort can be found at http://www.newhavenfort.org.uk

19 June Bangor & DARS Summer Radio Rally
Crawfordsburn Country Club, Nr Bangor, CoDown, Ulster.
Good selection of radio and computer traders. The usual excellent B&B will be in operation. Details: Norman, GI3YMY, 0289-146-6557.
EMail: nornewell@beeb.net

24-26 June Hamtronic Friedrichshaven, Germany
Web: http://www.messe-friedrichshaven.de

26 June Severnside TV Group's West of England Radio Rally
The Cheese & Grain Market Yard, Frome. Somerset. BA11 1BE.

Details: Shaun, G8VPG, 01225-873098.
Web: http://www.westrally.org.uk

3 July Norfolk ARC Barford Radio Rally
David, G7URP, 01953-457322 or 01953-458844.
EMail: radio@dcpmicro.com Web: http://www.norfolkamateurradio.com
3 July York RC Rally
Arthur, G8IMZ, 01904-787799 or 07841-120738

10 July The 42nd Annual Cornish Radio, Computer & Electronics Fair
The Penair School, Truro. Open 10:30. Refreshments. B&B. Morse tests. Demos and lots more. Contact: John, EMail: g4ljy@dsl.pipex.com or Ken, ken@jtarry.freeserve.co.uk

17 July McMichael Amateur Rally & Car Boot Sale
Min, G0JMS, 01189-723504.
Email: g0jms@radarc.org Web: http://go.to/mcmichaelrally

24 July Colchester RAC Rally
Gary, M0JJH, 01621-818620. EMail: M0JJH@despammed.com
or James, M0ZZO, 01255-242746. EMail: james@mcginty.net

24 July Fenland Repeater Group's Horncastle Rally
Horncastle Youth Centre, Horncastle, Lincs.
Open 10:30. Admission GBP1.00. Clubs/Private/Trade tables (inside or out) cost GBP4.00. Location map on the website. Details and table bookings to Tony, G3ZPU, 07749-715165. Email: rally@fenlandrepeater.org.uk
Web: http://www.fenlandrepeater.org.uk/hcr.html

29 - 31 July AMSAT-UK Space Colloquium
Jim, G3WGM, 01258-453959. EMail: g3wgm@amsat.org
Web: http://www.uk.amsat.org

30 July Martin Lynch & Sons Summer Barbecue & Boot Fair
EMail: sales@hamradio.co.uk
Web: http://www.hamradio.co.uk

Binary Trees — Stephen Poole

In the March 2003 issue of Quanta, the article on Hidden Face calculations referred to a Radix-sort routine which itself used tree-sorting to operate rapidly.

There is a lot to be said about tree-diagrams, as they are mathematical entities with a wide variety of uses in all sorts of domains. Firstly, they are easy to define. Indeed this can be seen from the program which is very short and compact.

The first trunk has 1 branch, which is 2^0. At the second level, there are two branches, being 2^1. Similarly the third layer has four branches, or 2^2. This pattern continues throughout the tree's growth, so, for example, in the eighth year there are 2^(8-1)=128 new branches. Therefore it is extremely simple to navigate around a tree, jumping from branch to branch or from one years growth to another, by adding or subtracting the number of branches for that year.

The Binary_Trees_bas program draws a binary tree with various bifurcation-angles to show regular patterns resulting from whole fractions of 360 degrees. The most surprising is 72 degrees, which is one fifth of 360, and therefore draws strange paving's linking pentagons to flattened hexagons. (This one is a real mathematical monstrosity and a stereo-chemists nightmare!).

I have used Tree-Diagrams to sort text and numbers, find the shortest route out of a maze, and even draw 3D orchards... Many games, such as Draughts and Chess, as well as other Artificial Intelligence programs use arborescences to store and manipulate outcomes. These become easy to manage, as using array flags, you can literally 'Prune' branches, because of the very nature of binary tree maths.

If you understand this TREES_bas program, you should have no trouble with complicated arborescent routines. In any situation where you are

confronted with numerous difficult choices, bifurcation diagrams are the ideal solution. Especially in the domain of probabilities.

Binary Trees are so-called because each fork has but two branches. Three-branch forks give Ternary trees, and four-branch forks give Quaternary trees etc., but their maths are not as straightforward as with Binary trees. With 3D trees you also have to calculate the turning-angle along the branch, but that is beyond the scope of this article.
So happy decision-making!

```
110 REMark Binary_Trees_bas, by S.Poole, 1sept90, v21may2003.
120 :
130 CLEAR: OPEN#1,con_128: SCALE 256,-190,-64
140  WINDOW 512,256,0,0: PAPER 0: INK 7: FILL 0: PENDOWN
150   mv=16: p=80: n=2^((p+1)^.5): DIM t(n,4)
160 :
170 FOR g=10,30,45,60,72,90,120
180     a=g: CLS: AT 1,1
190     PRINT 'Fork Angle = ';g;' degrees.'
200     :
210     FOR f=2 TO n
220         i$=INKEY$(#1,0): cd=CODE(i$)
230         IF cd=32: EXIT f: REMark SPACE bar.
240         IF cd=27: EXIT g: REMark ESCape to QUIT.
250         :
260         fmod2=f MOD 2
270         t(f,3)=(f+fmod2)/2
280         IF NOT fmod2: a=-a
290         tf3=t(f,3)
300         t(f,4)=t(tf3,4)+a*(f>2)
310         r=RAD(t(tf3,4))
320         t(f,1)=t(tf3,1)+mv*COS(r)
330         t(f,2)=t(tf3,2)+mv*SIN(r)
340         POINT  t(f,2)*-1,t(f,1)
350         TURNTO t(f,4)+90: MOVE mv
360     END FOR f
370     i$=INKEY$(#1,250)
380 END FOR g
390 PENUP: WINDOW 512,206,0,0
400  AT 19,1: INPUT 'QUIT >'!i$
410  QUIT: REMark under QDOS use STOP.
420 ::
```

QL Colour Palettes

Stephen Poole

With the new GD colour drivers coming upon us, it is perhaps time to look at some aspects of the original QL palettes.

When I first acquired my QL in 1984, I tried experimenting with the colours, in an attempt to access them in a standard, logical way. But as far as the stipples were concerned, I could find no way to calculate them in a simple manner. Then, much later, I bought a copy of the Quanta Publication by Jan Jones, 'QL SuperBASIC - THE DEFINITIVE HANDBOOK'. This explained technically how palettes are computed, so it only remained for me to write a program to do the same thing, so anybody could thereafter access all colours by direct calculation.

Take a look at the program: It uses bitwise operators extensively to find out which colours are present, and logical 'OR' operators to decide which type of stipple is in use. Then it sums all the possible values to find out which is the actual composite colour number, which depends on the Mode. This is the only way to make sense of basic QL colours. It is not an obvious method, and without Jan's book, I doubt if I would have discovered how to do it.

Feel free to adapt the program to suit your own needs. I hope GD drivers are more straightforward to use!

```
110  REMark Palette_bas. by S.Poole, v1oct93, 6jan2004.
120  CLEAR: OPEN#1,con_16: WINDOW 512,256,0,0: PAPER 3,4,3: INK 7
130  STRIP 0: BORDER 8,0: CLS: w=48: h=24: sx=w*5: sy=h*5
140 FOR modes=2,1
150     md=modes: mo=8/md: MODE mo: sx=sx*(md=2): sy=sy*(md=2)
160     FOR stipple=0 TO 3
170         s=stipple: AT 23,2: CLS 3: PRINT;' MODE ';(mo),,'STIPPLE
';(s)!!
180         FOR colour=0 TO 7 STEP md
190               m=colour: pixel_x=m*w/md+ (sx*((s=1) OR (s=3))):
x=pixel_x
200             FOR contrast=0 TO 7 STEP md
210                 c=contrast: pixel_y=(c*h/md)+(sy*((s=2) OR (s=3)))
220                 :
230                 y=pixel_y: colour_distance=m^^c: d=colour_distance
240                 MB=((m&&1)=1)*1 : MR=((m&&2)=2)*2 : mg=((m&&4)=4)*4
```

```
250                 CB=((d&&1)=1)*8 : CR=((d&&2)=2)*16: CG=((d&&4)=4)*32
260                 Hz=((s&&1)=1)*64: Vt=((s&&2)=2)*128
270                 :
280                 composite= MB+ MR+ mg+ CB+ CR+ CG+ Hz+ Vt
290                 k=composite: BLOCK w,h,x,y,k
300                 CURSOR x,y: PRINT k: CURSOR x+w,y: PRINT;c
310             END FOR contrast: CURSOR x,y+h: PRINT colour
320         END FOR colour: i$=INKEY$(#1,-1)
330    END FOR stipple
340 END FOR modes: WINDOW 512,206,0,0: MODE 4
350  REMark Blue Red Green: mB mR mG cB cR cG: HoriZontal VerTical
360 ::
```

To Make a CD-RW act like a Floppy in QPC

Roy Kempton

In answer to G P Carne's letter here is the method that I used to make a CD-RW act as a Floppy in QPC.

To Make a CD-RW act like a Floppy in QPC

First you must have a program to FORMAT a CD.

These are usually part of your CD burning Program in Windoze.

In 'NERO' it is 'INCD'.

In 'ROXIO EASY CD CREATOR 5' it is 'DIRECT CD FORMAT UTILITY'.

Using this program you must format your CD-RW in Windoze.

Now go into QPC and on the QPC configuration screen, go to WIN/FLP and call up WIN/FLP configuration.

Then make WIN1 to be C:.WIN and WIN2 to be C:.WIN.

On my set up I have also configured WIN3 and WIN4 so that I have somewhere to store test runs.

If you happen to have your computer partitioned and have a separate Data Partition, then you should use the Data Partition letter instead of 'C'.

Now create WIN5,WIN6,WIN7 and WIN8 by using the CD ROM drive letter in place

of 'C'.

Now, with the Formatted ReWritable disc inserted, format it as described in the QPC manual.

I.E.

```
WIN_FORMAT 5       Allow WIN5_ to be formatted.
FORMAT WIN5_10     Create a 10 megabyte Win device.
                   You have to echo the two characters displayed.
WIN_FORMAT 5.0     Protect Win5_ against unwanted formatting.
```

Now repeat for WIN6, 7 and 8.

You should now have four sections on your CD-RW that you can use as separate floppys.

Note:- You can increase the size of WIN5,6,7 and 8 by putting in a larger number instead of 10. You could make it 100, thereby creating 100 megabyte WIN's.

"QL is 21"

A Major International QUANTA Workshop to mark the 21st Birthday of the QL, and of QUANTA will be held at Ibis Hotel, Portsmouth over weekend Saturday 29th – Sunday 30th October 2005
A 'One Stop' Event – Workshop and Hotel Accommodation ALL in One Place
ALL QL Users Welcome

More details in June / July Magazine, and on www.quanta.org.uk

BOOKING ACCOMMODATION AT THE IBIS HOTEL

The Manager of the Ibis Hotel has reserved 20 rooms specifically for people attending "QL is 21".

The rate is £42.95 per room per night, plus extended continental breakfast at £4.95 per head.

These rooms are not bookable through Ibis central booking service.

To get this concession it is essential that you book your accommodation direct with the Ibis Hotel, Portsmouth either by telephoning ++44(0)23 9264 0000 or in writing to The General Manager, Ibis Hotel, Winston Churchill Avenue, Portsmouth, Hampshire PO1 2LX, United Kingdom.

In making your reservation it is important to tell Ibis Hotel, Portsmouth that you are attending the "QL is 21 Computer Conference" which is being held there on Saturday 29th and Sunday 30th October 2005.

When you have made your reservation please tell Roy Brereton that you have done so so that if an additional allocation of rooms is needed Quanta can arrange it

Pictures from the Hove Show/AGM — Bruce Nicholls

Roy Wood - Qbranch

Marcel Kilgus - QPC / Jochen Merz - JMS

Sarah Gilpin - Quanta Secretary

Geoff Wicks - Just Words / Tony Firshman - TF Services
Dilwyn Jones in background

Bill Newell / Peter Fox

AGM

Geoff Wicks / John Southern / John Mason / John Gilpin / John Gregory

PYTHAGOREAN TRIANGLES Stephen Poole

When we were at school, we were all taught to remember details of right-angle triangles that had sides as whole-numbers, such as 3-4-5 or 5-12-13, (being opposite - adjacent - hypotenuse).
A few years ago, experimenting on my QL, I noticed that the series of Pythagorean triangles having the opposite sides in the series 3,5,7,9 etc was infinite, the adjacent and hypotenuse sides always having a difference of 1 unit.
Speaking with a local maths master, I was surprised to discover that this was not common knowledge, so I decided to make Quanta members aware of the method by incorporating it into a short program. The Line which does the work is 180.

Negative values Input are accepted, as are -1,0 & +1, and of course decimal numbers will compute correctly. The triangle is drawn with an automatic scale factor, adapted to keep the shape within the window, but the main purpose of the routine is to list WHOLE number values.

This is a bit like using a sledgehammer to crack a nut, but I thought members might be interested to see how simulating formula on the Q.L can reveal unsuspected trends. This is one of the things computers are best at.

```
110 REMark Pythagoras_bas, by S.Poole, v30mar2005
120  REMark Just enter a NULstring to Quit.
130   OPEN#1,con_16: WINDOW 512,256,0,0
140 :
150 REPeat loop
160    CLS: INPUT" Input an 'opposite' side number>"!i$
170    IF i$='': EXIT loop: ELSE opp=i$
180    n=(opp/2)*opp: hyp=n+.5: adj=n-.5
190    sc=hyp*2: sxy=sc/-2: SCALE sc,sxy,sxy
200    LINE 0,0 TO adj,0 TO adj,opp TO 0,0
210    PRINT opp,adj,hyp: i$=INKEY$(#1,500)
230 END REPeat loop
240  WINDOW 512,206,0,0: SCALE 100,0,0: CLS
250 ::
```

EASYPTR4 Released at Hove

Easyptr is a set of utilities and extensions that allow SuperBasic programs to utilise the pointer interface in a relatively easy way. The original package was written by Albin Hessler long before the GD2 colour drivers were envisaged. To enable SuperBasic programs to be updated to take advantage of the colour drivers Marcel Kilgus was given permission to update the package and the result is version 4.

This new version updates the Easymenu utility to allow the use of the colour system and palettes and also extends it by adding a feature to produce scalable menus. Easysprite has also been updated to allow it to run under the new colour drivers but the program is still only capable of producing mode4 and mode8 sprites, if you want to create high colour sprites you can use Jerome Grimbert's Sprite Editor as one alternative.

The new version is available from Jochen Merz Software and Qbranch.

QPCPrint Release at Hove

As detailed in the last issue QPCPrint, a program to allow the use of any windows printer to be used by QPC2, has now been released.

This is available from Jochen Merz Software and Qbranch.

Qemulator updates

Daniele Terdina has released version 2.3.3 of his windows QL emulator available from http://users.infoconex.com/daniele/winql.html. The update is free for registered users.

Changes since last version:

- Keyboard emulation is now compatible with Windows dead keys when using Sinclair or Minerva ROMs.
- Completed keyboard emulation for non-standard QL ROMs.
- Q-emuLator now accepts non-standard ROMs up to 80KB long, and expansion ROMs up to 32KB long.
- Fixed microdrive copy protection emulation (it was failing on fast PCs).
- Improved user manual in PDF format (courtesy of Phoebus Dokos).
- Added setup program to install/uninstall Q-emuLator.

Daniele has also released the fastest QL emulator to running under windows. He has completely rewritten the the CPU emulation from Qemulator . This is still in alpha quality stage and the version currently available for download can be used until the end of May 2005. Comparability with older QL software is reduced compared to Qemulator. It is available to all Q-emuLator users that purchased the "Expanded QL" level of registration and it can be downloaded by using this link:

http://users.infoconex.com/daniele/win/QemuFast.zip

If you don't have an "Expanded QL" Q-emuLator registration but you want to try QemuFast, you can ask for a free temporary registration code.

If you try QemuFast, please let Daniele know of any problems you encounter running QL software with it.

SBASIC/SuperBasic Reference Manual available in Adobe PDF.

The whole Reference Manual has now been converted using QPCPrint to Adobe PDF format. This is now available on CD for £20 from RWAP software.

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BACKUP QL WITH P.S.U. JS ROM - £85 JM ROM - £70
PART EXCHANGE ALLOWANCE - £15

WE DO REPAIRS, PART EXCHANGES, AND BUY Z88's & PARTS

NEW! CAMBRIDGE Z88 WITH OZ4+512k Internal Ram £150
*** ALSO AVAILABLE, 512k RAMPACK £40 ***

3 Microvitec or similar monitors £40 each.

All usual Spares, Interfaces, Repairs, and Part exchange QLs, and Z88

I still need Spectrums and parts, particularly interface ones.

Z 88 SPECIALS

Eproms 32k, FIVE for £10 128 k £10 each

Rams 512k £35 each

QL & PC COMPUTER USERS WILL FIND THE CAMBRIDGE Z88 ESPECIALLY USEFUL FOR WORK AWAY FROM THE DESKTOP, WITH TRANSFER PROGS DATA CAN BE SAFELY EXCHANGED WITH THEIR DESKTOP SYSTEM.

W.N.RICHARDSON & CO CONTINUES TO PROVIDE FULL SPARES AND SERVICES FOR SINCLAIR COMPUTERS, QL & THE CAMBRIDGE Z88

QUANTA AGM 2005 and WORKSHOP – HOVE

The Annual General Meeting rotates between the north and south of the country so as to ensure that all members have a short journey every other year.

This year was the turn of the South so the AGM together with the associated Workshop was held at Portslade Town Hall, Portslade, Hove on Sunday 17th April, and hosted by the Sussex QL Users Group.

A big thank you to Roy Wood and all members of the Sussex Group for arranging it, and especially to Sasha Wood & all her team for organising some very tempting refreshments.

A fine sunny and warm morning encouraged some 30 members and traders to turn out for the workshop.

It was pleasing to have so many traders at the workshop – TF Services, Jochen Merz Software, Just Words, Qbranch, and Q-Celt Computing together with Dilwyn Jones.
The new QPC Print program for outputting QDOS compatible files to Windows PC printers, QDT, and QWORD all attracted considerable attention. Beyond that there was demand for upgrading software such as QPC to version 3.30.

The AGM attracted some 30 members.

The report on 2004/2005 highlighted the Membership and Committee Review Surveys. John Southern speaking on the analysis of the Membership Survey commented on the high level of response, 70 members and 53 other QL users; also that 25% of the

respondents were happily using original basic 128MB QLs with microdrives.

The Annual Accounts for 2004 were received and adopted.

As indicated in the Chairmans Report for Year 2004 that was included in the February/March issue of the magazine both John Southern and Roy Brereton did not stand for re-election, and the meeting expressed their thanks to them for their services.

The Committee elected for 2005/2006 is:- John Mason - Chairman, Sarah Gilpin – Secretary, John Gilpin – Treasurer, and John Gregory – Committee Member.

After lively debate the Special Resolutions to keep the Committee refreshed, and to vary the quorum to meet present circumstances were approved with the necessary more than two-thirds majority

The major international Quanta Workshop "QL is 21" marking the 21st anniversaries of the launch of the QL and the start of QUANTA which is to be held at the Ibis Hotel Portsmouth over the weekend Saturday 29th/Sunday 30th October 2005 was formally launched, and the meeting discussed possible activities for the weekend.

The meeting were reminded of Quanta's policy to support financially projects for the benefit of members.

John Mason, Chairman

PS: At the usual short Committee Meeting which followed the AGM both Roy Brereton and Geoff Wicks were co-opted to the Committee.

New Programs and Updates !

We have many new things available at the moment :

QDT - The QL Desktop		£ 30.00 + P&P
EASYPTR parts 1&2 version 4 - high colour		£ 41.00 on CD with manual in Adobe format
EASYPTR parts 1&2 upgrade		£ 27.50 on CD (send master disk)
QPCPrint - print to any printer from QPC2		£ 27.50 on CD with manual in Adobe format
QPC2 v 3.30 (SMSQ/E v3.10 needed for QPCPrint)		£ 65.00
Upgrade from version 3.xx		£ Free. Send Master disk and return envelope and postage
Upgrade from v2.xx		£ 13.90
Upgrade from v 1.xx		£ 34.00
Keyboard mebranes	few left	£ 17.50
Super Gold Cards	3 only	£ 100.00 (second user tested and working)
New Super/Gold Card Batteries		£ 10.00 + P&P
Aurora Motherboards - new		£ 65.00
Qubide v 2.01 (1 only)		£ 50.00

20 Locks Hill, Portslade, Sussex. BN41 2LB. UK
Tel: +44 (0)1273 386030 Fax: +44 (0)1273 430501
email: sales@qbranch.demon.co.uk skype : royqbranch
web : http://www.qbranch.demon.co.uk

TF Services

Compswitch

A UK 4-way trailing socket designed to switch off computer peripherals automatically when the computer is switched off, or (in the case of an ATX computer) when it auto-powers down. *Compswitch* has one control socket, and three switched sockets. Can be used with lights/hifi/monitors—ie a QL monitor can be used as a switch control.

Cost £24

superHermes

A major hardware upgrade for the QL

All Hermes features (working ser1/2 at 19200, independent baud rates/de-bounced keyboard/ keyclick) IBM AT kbd I/F // HIGH SPEED RS232 at 57600// serial mouse port and 2 other RS232 inputs// 3 I/O lines // EEPROM

Cost (including manual/software) .....**£90** (£92/£93)
IBM AT UK layout Keyboard.....**£11 (£**13/£15)
Serial mouse.....**£8** (£8.50/£9)
Capslock/scrollock LED .....**£1** (£1.50/£1.50)
Keyboard or mouse lead .....**£3** (£3.50/£3.50)
High speed serial (ser3) lead.....**£4** (£4.50/£4.50)

Hermes available for £25 (£26/£27) **Working ser1/2 and independent input, debounced keyboard.**

SuperHermes LITE: All Hermes features (see above) + an IBM AT keyboard interface only.
Cost (incl keyboard lead) .....**£53** (£54/£55)

QL REPAIRS (UK only)

Fixed price for unmodified QLs, excl microdrives. QLs tested with Thorn-EMI rig and ROM software.

£27 incl 6 month guarantee

Minerva

The ORIGINAL system operating system upgrade

OTHER FEATURES COMMON TO ALL VERSIONS

DEBUGGED operating system/ autoboot on reset of power failure/ Multiple Basic/ faster scheduler- graphics (within 10% of lightning) - string handling/ WHEN ERROR/ 2nd screen/ TRACE/ non-English keyboard drivers/ "warm" fast reset. V1.97 with split OUTPUT baud rates (+ Hermes) & built in Multibasic.

First upgrade free. Otherwise send £3 (+£5 for manual if requd). Send disk plus SAE or two IRCs

MKI...£40 (£41/£43) **MKII...£65** (£66/£67)

MINERVA RTC (MKII) + battery for 256 bytes ram. CRASHPROOF clock & I²C bus for interfacing. Can autoboot from battery backed ram. Quick start-up.

QL RomDisq

Up to 8 mbyte of flash memory for the QL

A small plug in circuit for the QL's ROM port (or Aurora) giving 2, 4 or 8 mbytes of permanent storage - it can be thought of as a portable hard disk on a card, and reads at some 2 mbytes per second.

Think of it - you could fully boot an expanded QL, including all drivers/SMSQ etc off **RomDisq** at hard disk speed with only a memory expansion needed.

2 mbytes RomDisq.....**£39** (£40/£41)
4mbytes RomDisq.....**£65**(£66/£67)
8 mbytes RomDisq.....**£98** (£99/£100)
Aurora adaptor.....**£3** (£3.50/£4)

MPLANE

A low profile powered backplane with ROM port

A three expansion backplane with ROM port included for RomDisq etc. Aurora can be fitted in notebook case and powered off single 5V rail - contact QBranch for details. Two boards (eg Aurora and Gold Card/Super Gold Card/Goldfire fixed to base. Suitable for Aurora (ROM accessible from outside) & QL motherboard in tower case. Specify ROM facing IN towards boards, or OUT towards back of case.

Cost .....£34 (£35/£36)

I2C INTERFACES

Connects to Minerva MKII and any Philips I²C bus

Power Driver Interface 16 I/O lines with 12 of these used to control 8 current carrying outputs (source and sink capable)
2 amp (for 8 relays, small motors).....**£40** (£43/£44)
4 amp total (for motors etc).....**£45** (£48/£50)
Relays (8 3a 12v 2-way mains relays (needs 2a power driver).....**£25** (£28/£29)
Parallel Interface Gives 16 input/output lines. Can be used wherever logic signals are required.....**£25** (£27/£28)
Analogue Interface Gives eight 8 bit analogue to digital inputs (ADC) and two 8 bit digital to analogue outputs (DAC). Used for temp measurements, sound sampling (to 5 KHz), x/y plotting.....**£30** (£31/£32)
Temp probe (-40°C to +125°C).....**£10** (£10.50/£11)
Connector for four temp probes.....**£10** (£10.50/£11)
Data sheets.....**£2** (£2.50/£3)
Control software & manual (for all I/F).....**£2** (£2.50/£3)

QL SPARES

Keyboard membrane .....**no longer on sale**
1377 PAL.....**£3** (£3.50/£4)
Circuit diagrams.....**£3** (£3.50/£4)
68008 cpu or 8049 IPC.....**£8** (£8.50/£9)
8301/8302 or JM ROM or serial lead .....**£10** (£10.50/£11)
Power supply (sea mail overseas).....**£12** (£17/£21)
Other components (sockets etc) also available

Prices include postage and packing (Airmail where applicable) Prices are: UK (Europe /Rest of world). Payment by cheque drawn on bank with UK address,/postal order or CASH! I can no longer accept card payments as UK only does PDQ transaction. SAE or IRC for full list and details

31 Oct 02

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